# UNS University Hospital

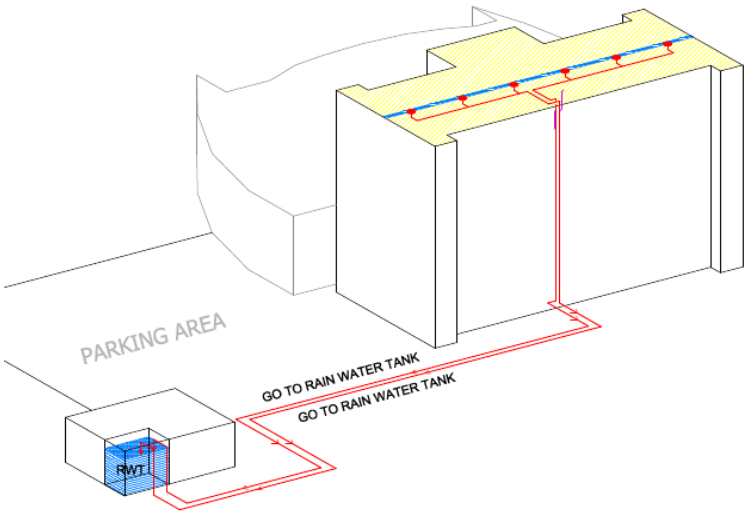

The Universitas Sebelas Maret (UNS) University Hospital in Surakarta, Indonesia was awarded to Fast Flow through its licensed distributor, PT Siphonic Flow Mandiri (SFM) in March 2015. The complex consists of a podium and a tower which designed to serve as a general hospital, clinical training centre and research centre for the medical faculties of the UNS.

The design of the building emphasizes sustainable development. Energy efficiency and conservation efforts are applied by having the building's OTTV (Overall Thermal Transfer Value) standard sets at not more than 45W/m2, the use of a rainwater management system and maximized use of natural light. The architect is Ferry Setiawan, ST. IAI. PT Waskita Karya is the main contractor.

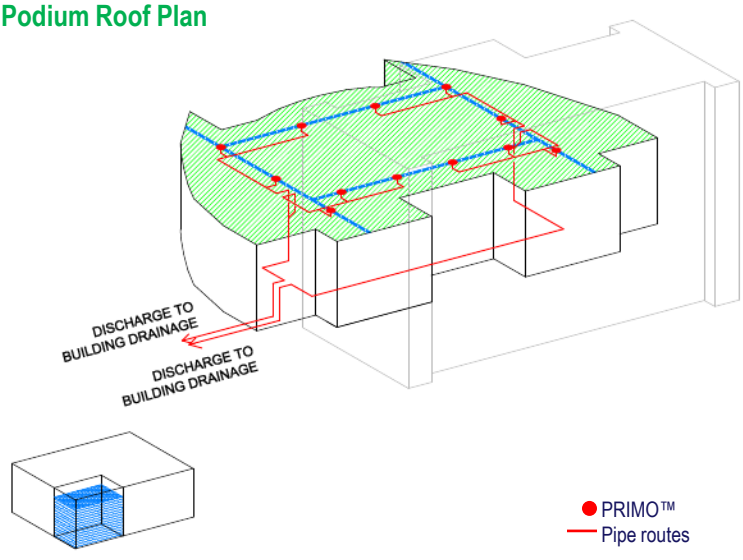
Inside this issue…

Fast Flow's system provides the hospital with 18 PRIMO™ rainwater outlets to drain a total roof area of 5,515 square metres and to convey the rainwater from the roof top to the civil drainage and a rainwater tank which is located over 150 metres away from the building. The Fast Flow's solution consists of 2 stacks of rainwater downpipe per building. The multiple link system solution allows great space-saving advantages within the building.

## Tower Roof Plan



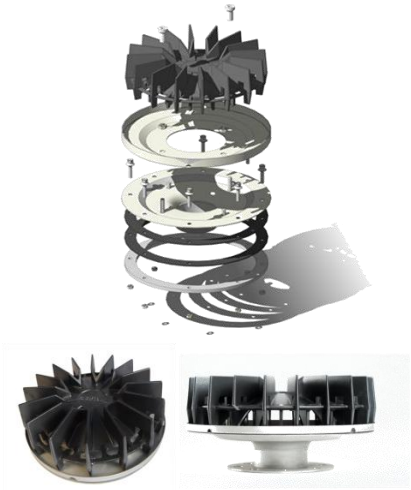

## Podium Roof Plan




## PRIMO™

Fast Flow PRIMO™ range of outlets are Fast Flow's premier and most comprehensive range. The PRIMO™ range works on all types of roof and gutters. With 4 outlets in the range each with its own unique capabilities, capacity and project suitability, there is a PRIMO™ outlet for all types of buildings.

All PRIMO™ outlets consist of a stainless steel baseplate and a cast aluminium alloy (epoxy coated) air baffle. Additional to this, installation kits are available for either metal gutter installation (cast aluminium counter flange, EPDM seal and stainless steel nuts and bolts) or concrete (RC) roof areas and car parks (stainless steel up turned clamping ring and stainless steel nuts).



The drainage capacity for the PRIMO series ranges from 20l/s to 150l/s.

# Raffles American School


The Raffles American School is part of the talent development spurred on by EduCity™ Iskandar Malaysia. Designed by the New York Architectural firm of SOM (Skidmore, Owings & Merrill LLP), the new Raffles American School is located among lush rolling hills in the fast-growing city of Iskandar, Malaysia. Pembinaan Mitrajaya Sdn Bhd is the main contractor. The project covers a total roof area of 27,000 sqm and was awarded to Fast Flow in February 2015.

## Project Uniqueness

The Architect wanted a very clean outer facade of all the buildings and raised the roof gutter parapet height to conceal the RC gutters around the building edge to maintain this clean finish. The Architect was also very space conscious and did not want the rainwater downpipes (RWDP) to be boxed up within the building eating up valuable space, making the building columns disproportionately big and unappealing.

## The Challenges

The project is being built in 2 phases and is a Design & Supply Material (DSM) project. Our main mission was to make the solution simple and standardised to allow for ease of construction and reduce the potential for incorrect installation. The initial conventional design included many outlets and rainwater downpipes running through the building. Also due to the concrete superstructure, even though each building was very long; the roof beams dissected the RC gutters making them all independent.

## Fast Flow's Solution

The solution was to have all of the internal RC roof gutters screeded to fall towards the building perimeter as this would reduce the rainwater downpipes below the gutter crossing rooms and corridors, and concentrate the water at the edge of the building.

Fast Flow's design team then designed single stack system at regular intervals. Since there was to be no box up, the stacks had to be engineered to not exceed 75 – 100 diametres so that they could cast them into the concrete columns. The team also proposed that each of the beams intersecting the gutters have weep pipes to allow the water to transfer freely between the gutters and outlets enhancing the overall efficiency of the system and making it safer.

Fast Flow is proud of being involved in such a remarkable project, and proud of the good customer relationships it has developed in Malaysia. The company was previously involved in the completion of the EduCity Stadium & Sports Complex and Pinewood Iskandar Malaysia Studios. Fast Flow will continue its service as an innovative and reliable provider for rainwater management at Iskandar Malaysia.


EduCity Stadium & Sports Complex


Pinewood Iskandar Malaysia Studios

## Fast Flow Group Q2/2015 Project Highlights

### Indonesia

Newly Secured Projects

Project title: Alfa Headquarters Towers Alam Sutera
Roof area: 7,167.22 sqm

Project title: Dr. Oen Surakarta Hospital
Roof area: 2,445.20 sqm

### Malaysia

Newly Secured Project

Project title: Suria Residence
Roof area: 7,000 sqm

Project title: MK 22 (Tower A & B)
Roof area: 3,500 sqm

Project title: KL Eco City (Parcel C Tower A)
Roof area: 1,350 sqm

## Fast Flow Group Q2/2015 Project Highlights

### Singapore

Newly Secured Projects


Project title: CGH Medical Centre
Roof area: 5,000 sqm

Project title: MediaHub (StarHub)
Roof area: 3,650 sqm

Project title: Singapore Chinese Cultural Centre
Roof area: 4,100 sqm

Recently Completed Projects

Project title: Twin Waterfalls
Roof area: 1,800 sqm

Project title: Capitol Singapore
Roof area: 11,000 sqm

# Comparing UPVC and HDPE

UPVC and HDPE pipes are arguably two of the most popular piping materials around the world, but both types have unique characteristics which can appeal to different uses. The following is a comparison of their uses in rainwater systems.

**Pipe Properties Comparison**

| Property | UPVC Pressure Pipe | HDPE Pipe | Remarks |
|---|---|---|---|
| Rating | PN6 | PN6 | Both pipe materials when used in siphonic systems have to be of minimum 6 bar pressure rating. |
| Collapse Strength | Strong<br>(3 x greater than HDPE) | Weak | The key criteria in Siphonic Systems are to avoid the implosion of pipe work due to negative induced pressures within the system. |
| Stiffness | Rigid | Soft | HDPE requires extensive bracketing such as rail system acting as a spine to give rigidity to the stack. UPVC no such requirement. |
| Coefficient of Linear Expansion | Low | High | HDPE requires rigid bracketing at 5m intervals to counter this high linear expansion and contraction of the piping system. UPVC no such requirement.<br><br>HDPE not good to expose to direct sun light . |
| Surface Energy | High | Low | HDPE has a “non-polar” surface and cannot be painted. Paint will easily peel off even with primer. UPVC can be painted to blend in with its surroundings. |
| Impact Resistance | Low | Medium | No issue as installed RWDPs are not intended to be exposed to any external impact requirement. |

### Installation Comparison

| Property | UPVC Pressure Pipe | HDPE Pipe | Remarks |
|---|---|---|---|
| "Hot work" on site | No | Yes | Dangerous. Butt welding hot plate required for HDPE, UPVC uses solvent cement. |
| Electricity | No | Yes | Welding machine runs on high consumption electricity equipment which may not be readily available on an active site. |
| Machinery | No | Yes | Extra equipment and handling challenges. |
| Labor cost | Lower | High | Need skilled welding machine operator. |
| Installer | Skilled | Skilled | Both require well trained installation workers. |
| Speed | Faster | Slower | UPVC has no need to handle welding machine, and less complicated bracketing installation.<br><br>HDPE butt welding is time and labor intensive. |

### Market Comparison

| Property | UPVC Pressure Pipe | HDPE Pipe | Remarks |
|---|---|---|---|
| Main areas of use | Building | Infrastructure | HDPE suitable for underground services work.<br><br>HDPE not suitable for external exposed pipe work.<br><br>Inferior and not widely used compared to UPVC in internal building works. |

# Mostra Convegno Expocomfort Asia 2015

Fast Flow is pleased to announce that we will exhibit at Mostra Convegno Expocomfort (MCE) Asia 2015.

Organized by Reed Exhibitions, the world's leading events organizer with over 500 events in 41 countries; MCE Asia 2015 is a not to be missed event dedicated to diverse industry sectors including plumbing technology, sanitary wares, water treatment, heating sector and the renewable energy sector of Southeast Asia.

This event, which is co-located with Build Eco Expo (BEX) Asia; the Southeast's Asia premier business platform for the Build Green environment, will be held at Marina Bay Sands from 2 to 4 September, during the Singapore Green Building Week 2015.

For more information and registration form, please visit http://www.mcexpocomfort-asia.com/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